

Fig. 1

1	15 16	30 31	45 46	60 61	75 76	90
1. B. halodurans	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
2 C. acetobutylicum	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
3 Bat803-2065	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
4 PalcaligenesMatur	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
1	15 16	30 31	45 46	60 61	75 76	90
1. B. halodurans	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
2 C. acetobutylicum	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
3 Bat803-2065	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
4 PalcaligenesMatur	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
1	15 16	30 31	45 46	60 61	75 76	90
1. B. halodurans	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
2 C. acetobutylicum	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
3 Bat803-2065	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
4 PalcaligenesMatur	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
1	15 16	30 31	45 46	60 61	75 76	90
1. B. halodurans	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
2 C. acetobutylicum	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
3 Bat803-2065	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----
4 PalcaligenesMatur	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----	-----W-----

"X" Domain

1 - SEQ ID NO: 13 2 - SEQ ID NO: 14 3 - SEQ ID NO: 2 4 - SEQ ID NO: 15

Replacement Sheet



B.

681 GATGTTGCTGCTGAAGCAGAAATCTCTTTCGAACTCATCTGAGGAAGCAAGGTTGAAGC
721 CCAGAGGGCCCTCAGATCGAGGGCTGAGCGCAACCCCGCAGAGCTGAATCTCTATCCCGCG
761 GAAGGAAGGAGGAGATCAGC

803 atgctgttcttctgagcactctctagcggagagcaactctctacg
M A L L E R I L A R D N L I T
848 ggcctcaaaagggctcgaaagccaaacggagagcaacgggaatcgac
A L K R V E A H Q G A P G I D
893 ggaattcaaacgcatcaactcggatgataatcggcgctcaactgg
G V S T D Q L R D Y I R A N H
936 agcacgatctcgccctcaactcttggcggaactcaacggccggcg
S T I R A Q L L A G T Y R P A
983 cctcttcggagggctcgaaatctccgaaacggcgcgcgacaggg
P W A S H G S D P K W G Q G T W H
1028 cagctagpccatcccaacggtggctggacgggtgatccaaagcc
Q L G I P T V V D R L I Q Q A
1073 actcttcaagactcaacccatcttcgatccgaactctcctccct
I L O E L T P I F D P F S S
1118 tccagcttcggatctcgttcggcgccgaacggccatcgatcgctg
S S F G F R F G R A H D A V
1163 cggcaagcgcaagggctacatccgagagggatcggttcgtgctc
H Q A Q G V I O S G Y R V V
1208 gacatggacctgaaaggtctcttggatgggttcaacatgacatc
O M D L E K F F O R V M H D I
1253 ttcgttgatcggttggccgaaagtcgaaggaataacggtcgctg
L H S R V A R K V K D K N V L
1298 aaactgatccgttcactcactgcaagcggttcgtatgatcgaggg
K L I R A Y L Q A G V M I E G
1343 gctgaggttcgacgagggagagggcgccgcaagggcggtccctc
V H V O T E T P Q G G P H
1388 agccctcgcttgccgacacatctctgctgagatcttgaagagaa
S P L A N N I L D D L D K E
1433 tctggagagcgaggttgaatcttcggttaccgagtgactgc
L E F R G L K F C R Y A D Q C
1478 aaactcta tctgaaaggtctcggggcgaggaacggttgaaacaa
N I Y V K S L R A G Q R V K Q
1523 agcatccaaacggttcttggagaaaggttcaactcaagtcaac
S I O R F L E K F L E K S A
1568 gaggagaaagtgcgggtggaacgctgagaaacgggctctctg
E K S A V D R F W K R A F L
1613 gggcttgcgttcacacggagagaaagcggaatcggctcgcc
G F S T P E R K A R I R L A
1658 ccaaggtcgatccaacgctgcaaacggatctgacagctgccc
P R S I Q R L K Q R I R O L T
1703 aaccnaactggagcatatgagtcgcaacagcttctatcgctc
H P H M S I S H P E R I R V Y
1748 aatcaatcgtctatggatgacatgggttattctcgtcgctgaa
H Q T V H G M I G T F R L V E
1793 acccgctctgctctcgaacatcgagagaggttcggagaggg
T P S V L Q T T E G M I R R A
1828 ctctgactctgctcaatgcttcaatggaaacgggttcgaaccca
L R R L C Q W L O M R A R V R T R
1883 atccctgaatcaagcgcttgggtgcaagagcaagcggtgatg
I R L R A L G L K E T A V H
1928 gtagctgccaactcaggaagagggatctggcgaaacaggaagcg
S I A H T R K G A H R T T K T
1973 ccgcgaactccacgaagcccttggcggaactctactgagccgtcaa
P Q L H O A L O R T W T R Q
2018 gggctcaagaggttcgagcgacgatacttcgacgctcgaaggt
G L N K S L T Q R Y F E L R Q
2063 tga

Bst755

Fig. 2

Bst1396

DNA - SEQ ID NO: 16

Protein - SEQ ID NO: 2

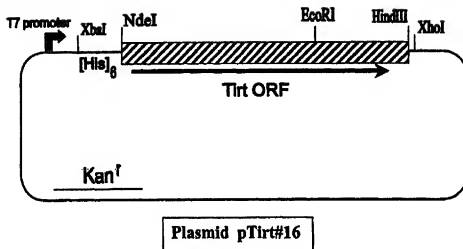
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Bst2198

Replacement Sheet

Fig. 8

A.



B.

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                                T7 promoter
1  TGGNNNNAGT NTTTAAACCT TTGNACGCC NTAATACNAC TCACTATAGG
    lac operator
51  GGAATTGTGA GCGGATAACA ATTCCCTCT AGAAATAATT TTNTTTAACT
    rbs                               His-tag
101 TTAAGAAGGA GATATACCat gggcagcagc catcatcatc atcatcagcg
    M G S S H H H H H H S
    > start of fusion NdeI
151 cagcggcctg gtgcgcgcgc gcagcATAT gcggcaagac ctgaatctca
    S G L V P R G S H M R Q D L N L I
201 tcccgcggaaa ggagaagatc acgatgcctt tgttggaacg catcttagcg
    P R K E K I T M A L L E R I L A
    > start of Tirt ORF
251 agagacaacc tcattcacgcg gctcaaacgg gtcgaaagcca accaaggagc
    R D N L I T A L K R V E A N Q G A
  
```

DNA Sequence - SEQ ID NO: 17

Amino Acid Sequence - SEQ ID NO: 18

Fig. 1

1	15 16	30 31	45 46	60 61	75 76	90
1 B. halodurans	-----	-----	-----	-----	-----	-----
2 C. acetobutylicum	-----	-----	-----	-----	-----	-----
3 Bat803-2065	-----	-----	-----	-----	-----	-----
4 PalcalligenesMatur	-----	-----	-----	-----	-----	-----
91	105 106	120 121	135 136	150 151	165 166	180
1 B. halodurans	-----	-----	-----	-----	-----	-----
2 C. acetobutylicum	-----	-----	-----	-----	-----	-----
3 Bat803-2065	-----	-----	-----	-----	-----	-----
4 PalcalligenesMatur	-----	-----	-----	-----	-----	-----
I	II	III	IV	V	VI	VII
181	195 196	210 211	225 226	240 241	255 256	270
1 B. halodurans	-----	-----	-----	-----	-----	-----
2 C. acetobutylicum	-----	-----	-----	-----	-----	-----
3 Bat803-2065	-----	-----	-----	-----	-----	-----
4 PalcalligenesMatur	-----	-----	-----	-----	-----	-----
271	285 286	300 301	315 316	330 331	345 346	360
1 B. halodurans	-----	-----	-----	-----	-----	-----
2 C. acetobutylicum	-----	-----	-----	-----	-----	-----
3 Bat803-2065	-----	-----	-----	-----	-----	-----
4 PalcalligenesMatur	-----	-----	-----	-----	-----	-----
361	375 376	390 391	405 406	420 421	435 436	450
1 B. halodurans	-----	-----	-----	-----	-----	-----
2 C. acetobutylicum	-----	-----	-----	-----	-----	-----
3 Bat803-2065	-----	-----	-----	-----	-----	-----
4 PalcalligenesMatur	-----	-----	-----	-----	-----	-----

"X" Domain

1 - SEQ ID NO: 13

2 - SEQ ID NO: 14

3 - SEQ ID NO: 2

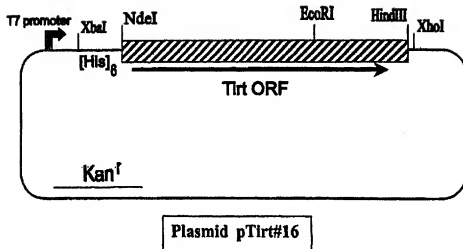
4 - SEQ ID NO: 15

Replacement Sheet

Enlarged text
Added Seq ID #s

Fig. 8

A.



B.

T7 promoter
 1 TGGNNNNAGT NTTTAAACCT TTGNACCGCC NTAATACNAC TCACTATAGG
 lac operator
 51 GGAATGTGTA GCGGATAACA ATTCCCTCT AGAAATAATT TTNTTTAACT
 rbs His-tag
 101 TTAAGAAGGA GATATACCat gggcagcgcg catctcctcgc atgcacacgcg
 M G S S H H H H H H S
 > start of fusion NdeI
 151 cagcggcctg gtgcgcgcgc gcagccatat gcggcaagac ctgaatctca
 S G L V P R G S H M R Q D L N L I
 201 tcccgcggaa ggagagatc acgagagctt tcttggaacg catcttagcg
 P R K E K I T H A L L E R I L A
 > start of Tirt ORF
 251 agagacaacc tcatacggc gctcaaacgg gtcgaagcca accaaggagc
 R D N L I T A L K R V E A N Q G A

DNA Sequence - SEQ ID NO: 17
 Amino Acid Sequence - SEQ ID NO: 18

Added
 seq ID #S